

ASSIGNMENT 11

Textbook Assignment: "Celestial Observations and Sight Reduction Methods (continued)," and "Weather Observation," chapters 9 and 10, pages 9-32 through 10-13.

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- 11-1. The H.O. 249 method of sight reduction is less accurate than the H.O. 229 method.
1. True
 2. False
- 11-2. H.O. 249 is also known as which of the following manuals?
1. Navigation Almanac
 2. Air Almanac
 3. Sight reduction tables for Air Navigation
 4. Nautical Almanac
- 11-3. Which of the following is a high magnitude star?
1. ALTAIR
 2. NUNKI
 3. VEGA
 4. KOCHAB
- IN ANSWERING QUESTIONS 11-4 AND 11-5, REFER TO FIGURE 9-18 IN YOUR TEXT.
- 11-4. What is/are the disadvantage(s) of using the H.O. 249 method of sight reduction?
1. H.O. 249 lists specific stars to use
 2. H.O. 249 is only useful in lower latitudes
 3. H.O. 249 is only useful in higher latitudes
 4. All of the above
- 11-5. When entering H.O. 249 to obtain the preferred stars, what information must be known?
1. Latitude and GHA
 2. Latitude and LHA only
 3. Latitude and SHA
 4. Latitude, LHA, and the star's name
- 11-6. What is the result of two morning sunlines and an LOP of LAN?
1. A noon celestial running fix
 2. A noon celestial EP
 3. A noon celestial AP
 4. A running fix
- IN ANSWERING QUESTIONS 11-7 THROUGH 11-11 REFER TO FIGURES 11-A AND 11-B (EXCERPTS FROM THE NAUTICAL ALMANAC). FIGURES 11-A AND 11-B ARE LOCATED AT THE END OF THIS ASSIGNMENT. YOUR SHIP IS UNDERWAY IN THE ATLANTIC AND YOU SHOOT LAN. THE FOLLOWING INFORMATION IS GIVEN:
- | | |
|------------------|---------------|
| DATE: | 1 AUGUST 1984 |
| DR LATITUDE: | 32°20.1N |
| DR LONGITUDE: | 17°50.0W |
| ZT LAN OBSERVED: | 1218 |
| IC: | 1.5 |
| hs: | 75°20.1' |
| HEIGHT OF EYE: | 60 FT |
- 11-7. What is the standard meridian?
1. 0°
 2. 7 1/2°
 3. 15°
 4. 22 1/2°
- 11-8. What is the d longitude (arc)?
1. 1° 50'
 2. 1° 45'
 3. 2° 15'
 4. 2° 50'
- 11-9. What is the d longitude (time)?
1. 8 min
 2. 10 min
 3. 11 min
 4. 14 min
- 11-10. What is the local mean time of meridian passage?
1. 1206
 2. 1218
 3. 1230
 4. 1300
- 11-11. What is the ZT LAN (1st est)?
1. 1206
 2. 1216
 3. 1217
 4. 1218
- 11-12. What is the oldest method of determining meridian altitude of the Sun?
1. Maximum altitude
 2. Numerous sights
 3. Maximum sights
 4. Maximum azimuth

- 11-13. How many minutes prior to the time of LAN should the observer start shooting?
1. 10
 2. 30
 3. 45
 4. 60
- 11-14. When is the numerous sights method of LAN most useful?
1. In heavy seas only
 2. In heavy cloud cover only
 3. High winds
 4. In heavy seas or heavy cloud cover
- 11-15. When you shoot a LAN, the latitude taken should be accurate within which of the following limits?
1. 1.0'
 2. 0.5'
 3. 10.0"
 4. 15.0"
- 11-16. The term LAN refers to which of the following times?
1. The time the Sun enters the time zone
 2. The time the Sun will be overhead at the standard meridian
 3. The local time where the Sun will be at 1200 LMT
 4. The time the Sun will be directly overhead at the local meridian
- 11-17. An LOP by LAN results in what type of navigational point?
1. A fix
 2. An EP
 3. A latitude line
 4. A longitude line

IN ANSWERING QUESTIONS 11-18 THROUGH 11-28, REFER TO PAGES 9-39 AND 9-40 IN YOUR TEXT.

- 11-18. What is the zone description?

1. 0
2. +1
3. -1
4. +2

- 11-19. What is the Tab Dec?

1. N 17 54.2
2. N 17 53.6
3. N 17 38.8
4. N 17 38.2

- 11-20. What is the d correction?

1. -.1
2. +.1
3. -.2
4. -.3

- 11-21. What is the True Dec?

1. N 17 53.0
2. N 17 53.4
3. N 17 53.5
4. N 17 53.8

- 11-22. What is the IC correction?

1. 0
2. (+)1.5
3. (-)1.5
4. +3.0

- 11-23. What is the Dip?

1. - .5
2. - 7.5
3. +15.4
4. +15.7

- 11-24. What is the Ha?

1. 75°14.1'
2. 75°18.6'
3. 75°21.6'
4. 75°30.0'

- 11-25. What is the altitude correction?

1. - .2'
2. - 8.4'
3. +15.7'
4. +15.9'

- 11-26. What is the H.O.?

1. 75°14.1'
2. 75°18.6'
3. 75°21.6'
4. 75°29.8'

- 11-27. What is the B Distance?

1. 15°21.2'
2. 15°08.4'
3. 14°33.8'
4. 14°30.2'

- 11-28. What is the latitude by LAN?

1. 32°20.0'
2. 32°21.0'
3. 32°21.6'
4. 32°24.2'

- 11-29. What gas near the Earth's surface has the largest percentage by volume of the atmosphere?
1. Argon
 2. Nitrogen
 3. Helium
 4. Oxygen
- 11-30. In which of the following regions would the air contain a greater quantity of water vapor?
1. North Pole
 2. South Pole
 3. Equator
 4. Mid-latitudes
- 11-31. The primary purpose of a barometer is to measure which of the following factors?
1. Amount of relative humidity
 2. Variations in atmospheric pressure
 3. Altitude above or below sea level
 4. Variations in ambient temperature
- 11-32. Warm air can hold more water vapor than cold air.
1. True
 2. False
- 11-33. Which of the following conditions is a factor in considering the makeup of weather?
1. Humidity
 2. Atmospheric pressure
 3. Temperature
 4. Each of the above
- 11-34. Which of the following is the correct definition of a cyclone?
1. An approximately circular portion of the atmosphere, in the vicinity of an atmospheric high
 2. The thin zone of discontinuity between two air masses
 3. An approximately circular portion of the atmosphere, in the vicinity of an atmospheric low
 4. A movement of air down a pressure gradient from higher to lower pressure

IN ANSWERING QUESTIONS 11-35 THROUGH 11-37, REFER TO FIGURE 10-1 IN YOUR TEXT.

- 11-35. In what direction does the air move in a cyclone that is centered over the state of Kansas?
1. Counterclockwise toward the center
 2. Clockwise toward the center
 3. Counterclockwise away from the center
 4. Clockwise away from the center
- 11-36. Assume you are in the Southern Hemisphere facing the wind that is circulating around a low pressure area. Where is the center of the area in relation to your position?
1. Toward your left
 2. Directly in front of you
 3. Directly in back of you
 4. Toward your right
- 11-37. Where are doldrums located?
1. In the Northern Hemisphere
 2. In the Southern Hemisphere
 3. Between northern and southern prevailing winds
 4. Between northern and southern trade winds
- 11-38. Where are doldrums generally positioned?
1. Slightly south of the equator
 2. Slightly north of the equator
 3. On the equator
 4. All of the above
- 11-39. In the doldrums, which factor causes greater rainfall?
1. The temperatures stay the same in the convergent zone
 2. The temperatures change erratically in the convergent zone
 3. The temperatures are low in the convergent zone
 4. The temperatures are high in the convergent zone

IN ANSWERING QUESTIONS 11-40 THROUGH 11-43
SELECT THE DESCRIPTION FROM COLUMN B THAT
MATCHES THE WIND IN COLUMN A. RESPONSES
WILL BE USED ONLY ONCE.

	<u>A. WIND</u>	<u>B. DESCRIPTION</u>
11-40.	Tradewinds	1. On the poleward side of the tradewinds; are persistent through mid-latitudes
11-41.	Horse latitudes	
11-42.	Prevailing westerlies	2. North and south of the doldrums
11-43.	Polar region	3. Areas of sub-tropical high pressure, 30°-40°N
		4. Move from the northeast in the Northern Hemisphere and from the southeast in the Southern Hemisphere

11-44. Which of the following particles is NOT found in the atmosphere?

1. Salt
2. Sand
3. Dust
4. Plant resin

11-45. Water vapor forms in clouds by what basic process?

1. Crystallization
2. Distillation
3. Evaporation
4. Condensation

11-46. Which of the following conditions is NOT necessary for clouds to form?

1. Wind
2. Moisture
3. A cooling process
4. Hygroscopic nuclei

11-47. Fog is merely a cloud on the ground.

1. True
2. False

11-48. The low-etage clouds form from the surface up to how many feet?

1. 5,000
2. 5,700
3. 6,500
4. 8,000

11-49. The mid-etage clouds occur in what altitude range, in feet?

1. 5,000 to 13,000
2. 5,700 to 15,000
3. 6,500 to 18,500
4. 8,000 to 20,000

11-50. The high-etage clouds occur in what altitude range, in feet?

1. 13,000 to 50,000
2. 15,000 to 30,000
3. 18,500 to 45,000
4. 20,000 to 50,000

11-51. Clouds described as thin and feather-like are identified by what name?

1. Cirrus
2. Stratus
3. Cumulus
4. Nimbostratus

11-52. What type of clouds are associated with the term "mackerel sky"?

1. Cirrostratus
2. Cumulonimbus
3. Stratocumulus
4. Cirrocumulus

11-53. What type of weather is generally associated with cirrostratus clouds?

1. Fog
2. Fair
3. Clear and cold
4. Rain

11-54. What type of cloud is composed of flattened globular masses being fairly small and thin?

1. Altocumulus
2. Altostratus
3. Cirrocumulus
4. Stratocumulus

IN ANSWERING QUESTIONS 11-55 THROUGH 11-57, SELECT THE CLASS OF CLOUDS FROM COLUMN B THAT MATCHES THE FAMILY OF CLOUDS IN COLUMN A. NOT ALL RESPONSES ARE USED.

	<u>A. FAMILY</u>	<u>B. CLASS</u>
11-55.	High clouds	1. Altostratus
11-56.	Middle clouds	2. Cirrocumulus
11-57.	Low clouds	3. Altocirrus
		4. Stratocumulus
<hr/>		
11-58.	Continuous rain may be expected from what type of cloud?	
	1. Stratus	
	2. Altostratus	
	3. Stratocumulus	
	4. Nimbostratus	
11-59.	What type of clouds are low, uniformly layered, and resemble fog?	
	1. Stratus	
	2. Stratocumulus	
	3. Altostratus	
	4. Nimbostratus	
11-60.	Vertical development is indicative of what two types of clouds?	
	1. Altostratus and cumulus	
	2. Cumulonimbus and stratus	
	3. Stratus and nimbostratus	
	4. Cumulus and cumulonimbus	
11-61.	Which of the following is a distinctive feature of cumulonimbus clouds?	
	1. Hazy appearance	
	2. Wispieness	
	3. Anvil-shaped tops	
	4. Shapelessness	
11-62.	Which form(s) of precipitation should you expect from cumulonimbus clouds?	
	1. Thunderstorms	
	2. Snow	
	3. Hail	
	4. All of the above	
11-63.	Fog at sea is formed through what process?	
	1. Condensation	
	2. Convection	
	3. Evaporation	
	4. Advection	

- 11-64. Which of the following conditions will probably cause onshore winds to produce fog along a coastline?
1. The onshore winds are forced upward by the land
 2. The waters adjacent to the land are colder than the waters farther offshore
 3. The Sun heats the land for a considerable distance inland
 4. The water heats up and cools faster than the land
- 11-65. Which of the following is a fairly reliable predictor of fog?
1. Barometric pressure
 2. Wind shifts
 3. Temperature gradient
 4. Wet-bulb depression
- 11-66. For which of the following conditions must an aneroid barometer be corrected?
1. Humidity
 2. Temperature
 3. Latitude
 4. Altitude
- 11-67. What is the average atmospheric pressure at the Earth's surface, in inches?
1. 28.92
 2. 29.50
 3. 29.92
 4. 30.32
- 11-68. Into what type of increments is the aneroid barometer graduated?
1. Inches of mercury only
 2. Inches of pressure
 3. Millibars only
 4. Inches of mercury and millibars
- 11-69. What is the abbreviation for millibars?
1. MIL
 2. Mb
 3. Mbr
 4. Mlb
- 11-70. What is a front?
1. Where distinctly different air masses touch
 2. Where air separates
 3. Where two strong air masses meet
 4. Where two weak air masses meet

- 11-71. How are isobars measured?
1. In inches of pressure
 2. In inches of mercury only
 3. In millibars only
 4. In inches of mercury and millibars
- 11-72. One millibar equals what part of a bar?
1. 1/10
 2. 1/100
 3. 1/1,000
 4. 1/10,000
- 11-73. In what values are pressure points usually indicated on weather charts?
1. Isobars
 2. Centimeters
 3. Inches
 4. Millibars
- 11-74. What term identifies lines on a weather chart that connect points of equal pressure?
1. Aneroid
 2. Humidity
 3. Isobars
 4. Pressure
- 11-75. Isobars are continuous lines that cross, enclosing a center.
1. True
 2. False

26NVJ092

1984 AUGUST 1, 2, 3 (WED., THURS., FRI.)

153

		SUN				MOON				Lat	Twilight		Sunrise	Moonrise				
G.M.T.		G.H.A.		Dec.	G.H.A.	V	Dec.	d	M.P.		Naut.	Civil		1	2	3	4	
WEDNESDAY	1 00	178	25.7	N18 01.8	130	12.1	10.3	M 5 15.1	15.9	60.3	N 72	□	□	09 05	11 23	13 47	16 48	
	01	193	25.7	01.1	144	41.4	10.2	4 59.2	15.8	60.2	N 70	□	□	09 09	11 17	13 28	15 55	
	02	208	25.8	18 00.5	159	10.6	10.4	4 43.4	15.8	60.2	68	□	□	09 12	11 12	13 13	15 22	
	03	223	25.8	17 59.9	173	40.0	10.4	4 27.6	15.9	60.2	66	□	□	09 14	11 08	13 01	14 59	
	04	238	25.8	59.3	188	09.4	10.4	4 11.7	15.9	60.2	64	□	□	09 17	11 04	12 52	14 41	
	05	253	25.9	58.6	202	38.8	10.4	3 55.8	15.9	60.2	62	□	□	09 19	11 01	12 43	14 26	
	06	268	25.9	N17 58.0	217	08.2	10.5	M 3 39.9	15.9	60.2	60	00 36	02 43	03 43	09 20	10 59	12 36	14 14
	07	283	26.0	57.4	231	37.7	10.5	3 24.0	15.9	60.2	N 58	01 36	03 02	03 55	09 22	10 56	12 30	14 03
	08	298	26.0	56.7	246	07.2	10.6	3 08.1	15.9	60.1	56	02 07	03 18	04 06	09 23	10 54	12 24	13 54
	09	313	26.0	56.1	260	36.8	10.6	2 52.2	15.9	60.1	54	02 29	03 31	04 15	09 24	10 52	12 19	13 46
	10	328	26.1	55.5	275	06.4	10.7	2 36.3	16.0	60.1	52	02 47	03 42	04 23	09 25	10 51	12 15	13 38
	11	343	26.1	54.8	289	36.1	10.8	2 20.3	15.9	60.1	50	03 02	03 52	04 31	09 26	10 49	12 11	13 32
	12	358	26.2	N17 54.2	304	05.7	10.7	M 2 04.4	16.0	60.1	N 40	03 19	04 29	04 59	09 30	10 43	11 55	13 06
	13	13	26.2	53.6	318	35.4	10.8	1 48.4	15.9	60.1	35	04 09	04 42	05 10	09 32	10 41	11 49	12 56
	14	28	26.2	52.9	333	05.2	10.7	1 32.5	15.9	60.0	30	04 23	04 54	05 20	09 33	10 39	11 43	12 48
	15	43	26.3	52.3	347	34.9	10.8	1 16.6	16.0	60.0	20	04 45	05 18	05 56	09 35	10 35	11 34	12 33
	16	58	26.3	51.6	2	04.7	10.8	1 00.6	15.9	60.0	N 10	05 02	05 28	05 30	09 38	10 32	11 26	12 21
	17	73	26.4	51.0	16	34.5	10.9	0 44.7	15.9	60.0	0	05 16	05 41	06 03	09 40	10 29	11 19	12 09
	18	88	26.4	N17 50.4	31	04.4	10.9	M 0 28.8	15.9	60.0	S 10	05 28	05 54	06 16	09 42	10 26	11 11	11 57
	19	103	26.4	49.7	45	34.3	10.9	M 0 12.9	15.9	59.9	20	05 40	06 06	06 29	09 44	10 24	11 04	11 45
	20	118	26.5	49.1	60	04.2	10.9	S 0 03.0	15.9	59.9	30	05 51	06 19	06 45	09 46	10 20	10 55	11 31
	21	133	26.5	48.5	74	34.1	10.9	0 18.9	15.9	59.9	35	05 56	06 27	06 53	09 47	10 18	10 50	11 23
	22	148	26.6	47.8	89	04.0	11.0	0 34.8	15.8	59.9	40	06 02	06 35	07 04	09 49	10 16	10 44	11 14
	23	163	26.6	47.2	103	34.0	11.0	0 50.6	15.9	59.9	45	06 09	06 44	07 15	09 51	10 14	10 37	11 03
THURSDAY	2 00	178	26.7	N17 46.5	118	04.0	11.0	S 1 06.5	15.8	59.8	S 50	06 16	06 55	07 30	09 53	10 11	10 30	10 50
	01	193	26.7	45.9	132	34.0	11.0	1 22.3	15.8	59.8	52	06 19	06 59	07 36	09 54	10 10	10 26	10 44
	02	208	26.7	45.3	147	04.0	11.0	1 38.1	15.8	59.8	54	06 22	07 05	07 44	09 55	10 08	10 22	10 38
	03	223	26.8	44.6	161	34.0	11.1	1 53.9	15.8	59.8	56	06 25	07 11	07 52	09 56	10 07	10 18	10 31
	04	238	26.8	44.0	176	04.1	11.0	2 09.7	15.7	59.8	58	06 29	07 17	08 01	09 57	10 05	10 13	10 23
	05	253	26.9	43.3	190	34.1	11.1	2 25.4	15.7	59.7	S 60	06 33	07 24	08 12	09 59	10 03	10 08	10 13
	06	268	26.9	N17 42.7	205	04.2	11.1	S 2 41.1	15.7	59.7								
	07	283	27.0	42.0	219	34.3	11.1	2 56.8	15.7	59.7	Lat.	Sunset	Twilight	Moonset				
	08	298	27.0	41.4	234	04.4	11.1	3 12.5	15.6	59.7			Civil	Naut.	1	2	3	4
	09	313	27.1	40.7	248	34.5	11.1	3 28.1	15.6	59.7								
	10	328	27.1	40.1	263	04.6	11.1	3 43.7	15.6	59.6	N 72	□	□	□	21 55	21 24	20 46	19 33
	11	343	27.2	39.5	277	34.7	11.1	3 59.3	15.6	59.6	N 70	22 30	□	□	21 56	21 34	21 08	20 28
	12	358	27.2	N17 38.8	292	04.8	11.2	S 4 14.9	15.5	59.6	68	21 48	□	□	21 56	21 41	21 24	21 01
	13	13	27.2	38.2	306	35.0	11.1	4 30.4	15.4	59.6	66	21 20	23 19	□	21 57	21 48	21 38	21 26
	14	28	27.3	37.5	321	05.1	11.1	4 45.8	15.5	59.5	64	20 59	22 22	□	21 58	21 54	21 49	21 45
	15	43	27.3	36.9	335	35.2	11.2	5 01.3	15.4	59.5	62	20 42	21 50	□	21 58	21 58	21 59	22 01
	16	58	27.4	36.2	350	05.4	11.1	5 16.7	15.3	59.5	60	20 28	21 26	23 24	21 58	22 03	22 08	22 14
	17	73	27.4	35.6	4	35.5	11.1	5 32.0	15.3	59.5	N 58	20 16	21 08	22 32	21 59	22 06	22 15	22 26
	18	88	27.5	N17 34.9	19	05.6	11.2	S 5 47.3	15.3	59.4	56	20 05	20 53	22 03	21 59	22 10	22 22	22 36
	19	103	27.5	34.3	33	35.8	11.1	6 02.6	15.2	59.4	54	19 56	20 40	21 41	21 59	22 13	22 27	22 45
	20	118	27.6	33.6	48	05.9	11.1	6 17.8	15.2	59.4	52	19 48	20 29	21 24	22 00	22 16	22 33	22 53
	21	133	27.6	33.0	62	36.0	11.1	6 33.0	15.1	59.4	50	19 41	20 19	21 09	22 00	22 18	22 38	23 00
	22	148	27.7	32.3	77	06.1	11.2	6 48.1	15.1	59.3	45	19 25	19 59	20 41	22 01	22 24	22 48	23 16
	23	163	27.7	31.7	91	36.3	11.1	7 03.2	15.0	59.3	N 40	19 13	19 43	20 20	22 01	22 28	22 57	23 28
FRIDAY	3 00	178	27.8	N17 31.0	106	06.4	11.1	S 7 18.2	15.0	59.3	35	19 02	19 29	20 03	22 01	22 32	23 04	23 39
	01	193	27.8	30.4	120	36.5	11.1	7 33.2	14.9	59.3	30	18 52	19 18	19 49	22 02	22 36	23 11	23 49
	02	208	27.9	29.7	135	06.6	11.0	7 48.1	14.9	59.3	20	18 36	19 00	19 27	22 02	22 42	23 23	24 05
	03	223	27.9	29.1	149	36.6	11.1	8 03.0	14.8	59.2	N 10	18 23	18 45	19 11	22 03	22 48	23 33	24 20
	04	238	28.0	28.4	164	06.7	11.1	8 17.8	14.8	59.2	0	18 10	18 31	19 57	22 03	22 53	23 43	24 34
	05	253	28.0	27.7	178	36.8	11.0	8 32.6	14.7	59.2	S 10	17 57	18 19	18 44	22 04	22 58	23 52	24 47
	06	268	28.1	N17 27.1	193	06.8	11.0	S 8 47.3	14.6	59.2	20	17 43	18 06	18 33	22 04	23 03	24 02	00 02
	07	283	28.1	26.4	207	36.8	11.0	9 01.9	14.6	59.1	30	17 28	17 53	18 22	22 05	23 10	24 14	00 14
	08	298	28.2	25.8	222	06.8	11.0	9 16.5	14.5	59.1	35	17 19	17 46	18 16	22 05	23 13	24 21	00 21
	09	313	28.2	25.1	236	36.8	11.0	9 31.0	14.5	59.1	40	17 09	17 38	18 10	22 05	23 17	24 29	00 29
	10	328	28.3	24.5	251	06.8	11.0	9 45.5	14.4	59.0	45	16 57	17 29	18 04	22 05	23 22	24 38	00 38
	11	343	28.3	23.8	265	36.8	10.9	9 59.9	14.3	59.0	S 50	16 43	17 18	17 57	22 06	23 28	24 49	00 49
	12	358	28.4	N17 23.1	280	06.7	10.9	S 10 14.2	14.3	59.0	52	16 37	17 14	17 54	22 06	23 31	24 55	00 55
	13	13	28.5	22.5	294	36.6	10.9	10 28.5	14.2	59.0	54	16 29	17 08	17 51	22 06	23 34	25 00	01 00
	14	28	28.5	21.8	309	06.5	10.9	10 42.7	14.1	58.9	56	16 21	17 03	17 48	22 06	23 37	25 07	01 07
	15	43	28.6	21.2	323	36.4	10.9	10 56.8	14.1	58.9	58	16 12	16 56	17 44	22 07	23 41	25 14	01 14
	16	58	28.6	20.5	338	06.3	10.8	11 10.9	14.0	58.9	S 60	16 01	16 49	17 40	22 07	23 45	25 22	01 22
	17	73	28.7	19.8	352	36.1	10.8	11 24.9	13.9	58.9								
	18	88	28.7	N17 19.2	7	05.9	10.8	S 11 38.8	13.8	58.8								
	19	103	28.8	18.5	21	35.7	10.7	11 52.6	13.8	58.8								
	20	118	28.8	17.9	36	05.4	10.8	12 06.4	13.7	58.8								
	21	133	28.9	17.2	50	35.2	10.7	12 20.1	13.6	58.8								
	22	148	28.9	16.5	65	04.9	10.7											

Figure 11A.—Nautical Almanac right-hand daily page.

ALTITUDE CORRECTION TABLES 10°-90°—SUN, STARS, PLANETS

OCT.—MAR. SUN			APR.—SEPT.			STARS AND PLANETS			DIP		
App. Alt.	Lower Limb	Upper Limb	App. Alt.	Lower Limb	Upper Limb	App. Alt.	Corr ⁿ	Additional Corr ⁿ	Ht. of Eye	Corr ⁿ	Ht. of Eye
0			0			0			m		ft
9 34	+10.8	-21.5	9 39	+10.6	-21.2	9 56	-5.3	1984	2.4	-2.8	8.0
9 45	+10.9	-21.4	9 51	+10.7	-21.1	10 08	-5.2	VENUS	2.6	-2.9	8.6
9 56	+11.0	-21.3	10 03	+10.8	-21.0	10 20	-5.1	Jan. 1-Dec. 12	2.8	-3.0	9.2
10 08	+11.1	-21.2	10 15	+10.9	-20.9	10 33	-5.0	0	3.0	-3.1	9.8
10 21	+11.2	-21.1	10 27	+11.0	-20.8	10 46	-4.9	60 + 0.1	3.2	-3.2	10.5
10 34	+11.3	-21.0	10 40	+11.1	-20.7	11 00	-4.8	Dec. 13-Dec. 31	3.4	-3.3	11.2
10 47	+11.4	-20.9	10 54	+11.2	-20.6	11 14	-4.7	0	3.6	-3.3	11.9
11 01	+11.5	-20.8	11 08	+11.3	-20.5	11 29	-4.6	41 + 0.2	3.8	-3.4	12.6
11 15	+11.6	-20.7	11 23	+11.4	-20.4	11 45	-4.5	76 + 0.1	4.0	-3.5	13.3
11 30	+11.7	-20.6	11 38	+11.5	-20.3	12 01	-4.4		4.3	-3.6	14.1
11 46	+11.8	-20.5	11 54	+11.6	-20.2	12 18	-4.3		4.5	-3.7	14.9
12 02	+11.9	-20.4	12 10	+11.7	-20.1	12 35	-4.2		4.7	-3.8	15.7
12 19	+12.0	-20.3	12 28	+11.8	-20.0	12 54	-4.1		5.0	-3.9	16.5
12 37	+12.1	-20.2	12 46	+11.9	-19.9	13 13	-4.0	MARS	5.2	-4.0	17.4
12 55	+12.2	-20.1	13 05	+12.0	-19.8	13 33	-3.9	Jan. 1-Mar. 4	5.5	-4.1	18.3
13 14	+12.3	-20.0	13 24	+12.1	-19.7	13 54	-3.8	0	5.8	-4.2	19.1
13 35	+12.4	-19.9	13 45	+12.2	-19.6	14 16	-3.7	60 + 0.1	6.1	-4.3	20.1
13 56	+12.5	-19.8	14 07	+12.3	-19.5	14 40	-3.6	Mar. 5-Apr. 24	6.3	-4.4	21.0
14 18	+12.6	-19.7	14 30	+12.4	-19.4	15 04	-3.5	0	6.6	-4.5	22.0
14 42	+12.7	-19.6	14 54	+12.5	-19.3	15 30	-3.4	41 + 0.2	6.9	-4.6	22.9
15 06	+12.8	-19.5	15 19	+12.6	-19.2	15 57	-3.3	76 + 0.1	7.2	-4.7	23.9
15 32	+12.9	-19.4	16 14	+12.7	-19.1	16 26	-3.2		7.5	-4.8	24.9
15 59	+13.0	-19.3	16 44	+12.8	-19.0	16 56	-3.1	Apr. 25-June 15	7.9	-4.9	26.0
16 28	+13.1	-19.2	17 15	+12.9	-18.9	17 28	-3.0	0	8.2	-5.0	27.1
16 59	+13.2	-19.1	17 48	+13.0	-18.8	18 02	-2.9	34 + 0.3	8.5	-5.1	28.1
17 32	+13.3	-19.0	18 24	+13.1	-18.7	18 38	-2.8	60 + 0.2	8.8	-5.2	29.2
18 06	+13.4	-18.9	19 01	+13.2	-18.6	19 17	-2.7	80 + 0.1	9.2	-5.3	30.4
18 42	+13.5	-18.8	19 42	+13.3	-18.5	19 58	-2.6		9.5	-5.4	31.5
19 21	+13.6	-18.7	20 25	+13.4	-18.4	20 42	-2.5	0	9.9	-5.5	32.7
20 03	+13.7	-18.6	21 11	+13.5	-18.3	21 28	-2.4	41 + 0.2	10.3	-5.6	33.9
20 48	+13.8	-18.5	22 00	+13.6	-18.2	22 19	-2.3	76 + 0.1	10.6	-5.7	35.1
21 35	+13.9	-18.4	22 54	+13.7	-18.1	23 13	-2.2	Aug. 28-Dec. 31	11.0	-5.8	36.3
22 26	+14.0	-18.3	23 51	+13.8	-18.0	24 11	-2.1	0	11.4	-5.9	37.6
23 22	+14.1	-18.2	24 53	+13.9	-17.9	25 14	-2.0	60 + 0.1	11.8	-6.0	38.9
24 21	+14.2	-18.1	26 00	+14.0	-17.8	26 22	-1.9		12.2	-6.1	40.1
25 26	+14.3	-18.0	27 13	+14.1	-17.7	27 36	-1.8		12.6	-6.2	41.5
26 36	+14.4	-17.9	28 33	+14.2	-17.6	28 56	-1.7	0	13.0	-6.3	42.8
27 52	+14.5	-17.8	30 00	+14.3	-17.5	30 24	-1.6	41 + 0.2	13.4	-6.4	44.2
29 15	+14.6	-17.7	31 35	+14.4	-17.4	32 00	-1.5	76 + 0.1	13.8	-6.5	45.5
30 46	+14.7	-17.6	33 20	+14.5	-17.3	33 45	-1.4		14.2	-6.6	46.9
32 26	+14.8	-17.5	35 17	+14.6	-17.2	35 40	-1.3	0	14.7	-6.7	48.4
34 17	+14.9	-17.4	37 26	+14.7	-17.1	37 48	-1.2	60 + 0.1	15.1	-6.8	49.8
36 20	+15.0	-17.3	39 50	+14.8	-17.0	40 08	-1.1		15.5	-6.9	51.3
38 36	+15.1	-17.2	42 31	+14.9	-16.9	42 44	-1.0		16.0	-7.0	52.8
41 08	+15.2	-17.1	45 31	+15.0	-16.8	45 36	-0.9		16.5	-7.1	54.3
43 59	+15.3	-17.0	48 55	+15.1	-16.7	48 47	-0.8		16.9	-7.2	55.8
47 10	+15.4	-16.9	52 44	+15.2	-16.6	52 18	-0.7		17.4	-7.3	57.4
50 46	+15.5	-16.8	57 02	+15.3	-16.5	56 11	-0.6		17.9	-7.4	58.9
54 49	+15.6	-16.7	61 51	+15.4	-16.4	60 28	-0.5		18.4	-7.5	60.5
59 23	+15.7	-16.6	67 17	+15.5	-16.3	65 08	-0.4		18.8	-7.6	62.1
64 30	+15.8	-16.5	73 16	+15.6	-16.2	70 11	-0.3		19.3	-7.7	63.8
70 12	+15.9	-16.4	79 43	+15.7	-16.1	75 34	-0.2		19.8	-7.8	65.4
76 26	+16.0	-16.3	86 32	+15.8	-16.0	81 13	-0.1		20.4	-7.9	67.1
83 05	+16.1	-16.2	90 00	+15.9	-15.9	87 03	0.0		20.9	-8.0	68.8
90 00						90 00	0.0		21.4	-8.1	70.5

App. Alt. = Apparent altitude Sextant altitude corrected for index error and dip.

Figure 11B.—Nautical Almanac Altitude Correction Tables.